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Expression of a bacterial modification methylase gene in yeast.

Fehér Z, Kiss A, Venetianer P.

Methylation of specific cytosines in the DNA is generally believed to play some role in the regulation of gene expression in eukaryotes. However, some eukaryotes, such as *Drosophila* and yeast (S. Hattman, personal communication) seem not to contain 5-methylcytosine in their DNA. It would be interesting to test, how gene expression in such organisms would respond to the methylation of specific cytosines in the genome. As a first step toward this goal, we have introduced the gene encoding the *Bacillus sphaericus* R modification methylase, which methylates the internal cytosine within the recognition sequence 5'-GGCC, into yeast cells. Southern-type hybridization to DNAs isolated from the transformed yeast clones revealed that the yeast plasmid carrying the prokaryotic methylase gene, as well as the two chromosomal genes tested (*his3* and *leu2*) were methylated, whereas the bulk of the yeast DNA remained largely unmethylated. This indicates that the *Bacillus sphaericus* modification methylase was expressed in yeast but it modified only certain parts of the yeast DNA.

PMID: 6339942 [PubMed - indexed for MEDLINE]

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